TEXTILE TECHNOLOGY DIGEST

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ABSTRACTS

FIBERS A

Convert fiber characteristics with these nomographs.

R. Saxon (Harris Research Laboratories). *Textile World 106:* 105 (June, 1956).

From the specific gravity of a fiber these nomographs will give pounds per square inch from tenacity in grams per denier, and denier from fiber diameter.

Mechanical behavior of viscoelastic fibers.

F. Akutowicz (American Viscose Corp.). *J. Appl. Phys. 27:* 439-441 (May, 1956); *J. Franklin Inst. 261:* 509-526 (May, 1956).

Geometric interpretation of an equation describing the stress-strain relationship in terms of measures of force, deformation and time.

Second-order transition temperature and fiber properties.

T. Eeg-Olofsson (Swedish Textile Institute). Reply: A. Brown (Bakelite Co.). *(Letters to the editor). Textile Research J. 26:* 352-354 (May, 1956).

Letter and answer refer to paper by A. Brown (See *TTD 13:* 1 (1956)). The use of a logarithmic versus a linear scale for stiffness measurements in determining second-order transition temperatures is discussed.

NATURAL FIBERS A 1

Equations for predicting cotton processing performance and product quality by improved evaluations of raw-cotton quality.

R. W. Webb. Wash., U. S. Agricultural Marketing Service, 1956. 41 p. Marketing Research Report No. 114. Available from Superintendent of Documents, Washington 25, D. C. 25¢.

This report presents a number of new equations for predicting the strength and appearance of any size of carded yarn over a wide range, number of neps per 100 sq. in. of card web, and percentage of total picker and card waste on the basis of improved methods for evaluating raw-cotton quality. Varying numbers and combinations of cotton-quality factors, including fiber strength at the ⅛″ gauge spacing, as well as the alternative Causticaire and Micronaire measures of fiber fineness (wt./in.), were used in the analyses. The other cotton-quality measures considered were upper half mean length, length uniformity ratio, Causticaire fiber maturity, and grade of cotton.

Causes and detection of damage in raw cotton.

A. N. J. Heyn (Clemson College). *Textile Ind. 120:* 137-145 (May, 1956).

A brief critical evaluation of present knowledge on various microbial, mechanical, chemical and heat damages, their causes, effects, and methods for their detection. Photographs. 56 references.

Cotton Trade Journal international yearbook, 1955-1956.

1956. 260 p. Available from Cotton Trade Journal, Inc., Memphis, Tenn. $3.00.

This research number contains articles on cotton growing, marketing, manufacture, and research in many different countries.

Physical properties of wool fibers: set and supercontraction.

Wool Sci. Rev. No. 15: 39-50 (March, 1956).

The mechanisms of action of the various mechanical and chemical treatments for altering the degree of set in wool are examined. 7 references.

The recovery of wool from sheepskin pieces.

F. G. Lennox (Wool Textile Research Lab.). *(Letter to the editor). Chemistry & Industry No. 18:* 382 (May 12, 1956).

Current industrial practice in Australia for recovering wool from sheepskin pieces consists of shrinking in hot water followed by digestion in warm water containing calcium, with vigorous aeration and scouring without previous drying.

The present position of the ramie problem.

J. Gauthier. *Industrie Textile:* 11-20 (January, 1956); *in French.* Through *BCIRA 36:* 243 (1956).

Cultivation of ramie is discussed (planting, maintenance, irrigation and utilization), and reference is made to methods of retting, washing and drying, beating, calculation of cost price (in North Africa), harvesting and decortication, and nutritive value of ramie leaves.

MAN-MADE FIBERS A 2

Stress-relaxation and vibrational properties of some fibrous polymers at various conditions of temperature and relative humidity.

S. J. W. Price, A. D. McIntyre, J. P. Pattison and B. A. Dunell (University of British Columbia). *Textile Research J. 26:* 276-283 (April, 1956).

Stress-relaxation curves, dynamic Young's modulus, and dynamic internal friction have been obtained for single filaments of rayon, nylon, and polyethylene at 2° and 25°C. and at several relative humidities. Stress-relaxation measurements have been taken at 0.02 sec. after elongation. Dynamic parameters were observed in a forced longitudinal vibration experiment in which the vibrational frequency could be varied from approximately 5 to 50 cps. It is found that the dissipation of energy per cycle of vibration increases with increasing relative humidity, but that the slope of the stress-relaxation curve decreases with increasing relative humidity. An indication is given that energy dissipation in viscose rayon is independent of hydrogen bonding in the material. Graphs. Diagrams. 8 references.

The fiber properties of modified aromatic polyesters. Part 2.

W. Griehl and R. Hoffmeister. *Faserforsch. u. Textiltech. 6, No. 12:* 554-562 (1955); *in German.* Through *BCIRA 36:* 142 (1956).

Condensates of polyethylene terephthalate containing sebacic acid were found to have better thermal stability and give soft fibers, stable to ultra-violet light and with improved dyeing properties. Similar results were obtained with pimelic acid. The glycol-modified products have less favorable properties, and condensates containing propane- and butane-diol are of no practical importance on account of their thermal instability, brittleness, etc.

Polyethylene for textile uses.

Courtaulds Ltd. *Textile Wkly. 56:* 1446 (May 18, 1956).

Physical and chemical properties of a new type monofilament of polyethylene, Courlene X-3, are listed and compared to standard Courlene.

Nylon in industry.

Fibres 17: 163-166 (May, 1956).

The advantages of nylon in rope slings, rope drives, transmission belts, conveyor belts, drop stamp belts, fire hoses, spindle tapes, tarpaulins, industrial felts, industrial clothing, safety harnesses, tires, filter cloths, electrical cable, insulating tape, and telephone cords are outlined.

Celon: the new Celanese fiber.

A. R. Knight. *Fibres 17:* 150-153 (May, 1956).

The effect of Celon's properties (strength, elasticity, relaxation, moisture regain and reaction to heat treatment) on the setting, dyeing and finishing of fabrics is discussed.

Movil and its uses.

F. Panizzon. *Notizziario 4, No. 6:* 24-31 (1954); *in Italian.* Through *BCIRA 36:* 113 (1956).

Preparation, characteristic properties, and uses of the Italian polyvinyl chloride fiber Movil are described.

Polyvinyl alcohol fibers.

G. B. Carpenter and O. L. Wheeler (Air Reduction Co., Inc.). *Textile Research J. 26:* 317-322 (April, 1956).

Review of the Japanese development of vinylon. Details of production, properties and economics are included. 9 references.

YARN PRODUCTION B

What are the causes of quality variations in cotton spinning?

B. Kirschner. *Z. ges. Textil-Ind. 58, No. 2:* 46-48; *No. 3:* 77-80; *No. 4:* 114-116; *No. 5:* 146-149 (1956); *in German.* Through *BCIRA 36:* 258 (1956).

Variations in the quality of cotton yarn are investigated, with reference to the factors causing them, (a) nature of the cotton (length, strength, fineness and crimp of the fiber, purity and color, nep and dead-fiber content, and mean staple length), (b) construction or combination of machines and their condition, (c) faulty servicing of the machines and use of wrong processing methods, and (d) count variations, out-of-date installations, and incorrect working conditions. The respective testing devices are illustrated and practical advice is given for eliminating these causes.

New spinning process for rayon staple.

P. Seuchter. *Melliand Textilber. 36, No. 12:* 1216-1217 (1955); *in German.* Through *BCIRA 36:* 116 (1956).

With reference to the Stains machine for direct spinning of rayon staple (stapling of slivers from continuous filaments, drawing of the sliver and twisting of the yarn) the author shows the regularity diagram of a yarn and the corresponding fabric (as compared with those obtained by the normal process), a staple diagram of the fibers, and a table giving the practical output (against the theoretical) of yarns Nm 24-180 in Kg of viscose staple yarn per 100 spindle hours.

The fruits of spinning modernization.

R. E. Pomeranz (Roberts Co.). *Textile Bull. 82:* 80-83 (May, 1956).

Brief outline of the various elements to be considered in a spinning modernization program.

Problem—heavy yarn; solution—decrease break draft.

R. Main. *Textile World 106:* 120-121 (May, 1956).

Mill method of locating and correcting cause of heavy yarn.

OPENING, PICKING, FIBER PREPARATION B 1

Pressure lubrication on the Shirley opener.

Tweedales and Smalley (1920) Ltd. *Globe Rev. 2, No. 2:* 60-62 (1956).

Diagram shows arrangement of pressure lubrication equipment fitted to the Shirley opener.

Shirley beater compartment.

Tweedales and Smalley (1920) Ltd. *Textile Wkly. 56:* 1268-1269 (May 4, 1956); *Globe Rev. 2, No. 2:* 49-52 (1956); *Textile Merc. 134:* 749-750 (May 11, 1956).

The Shirley beater compartment is an arrangement of a special beater, baffle and cover for application to a picker to give more intimate blending and superior lap formation. It has been designed for use with varying classes of cotton and synthetic staple fibers, and can be adapted to fit most pickers.

Picker lap quality.

Z. Szaloki (Whitin Machine Works). *Whitin Rev. 23:* 21-32 (May, 1956).

The paper deals primarily with: picker lap quality in general; machinery and measuring devices for improving and determining lap quality; operating practices contributing to good picker lap quality; and machine improvements contributing to better picker lap quality.

CARDING AND COMBING B 2

Problems in the carding of chemical fibers, alone and in mixtures.

W. Mey. *Textil- u. Faserstofftech. 6, No. 2:* 61-66 (1956); *in German.* Through *BCIRA 36:* 244 (1956).

Carding of Perlon on the three- and four-roller spinning system is discussed. Various processes were tried on pure Perlon, Perlon/cotton and Perlon/rayon; they are compared with each other and evaluated by means of Uster regularity tests on card slivers and from the appearance of card webs. It is shown that the use of all-steel card clothing is of greater advantage than that of elastic clothing. Differences between the appearance of the web and that of flat strips are shown in photographs, and a selection of characteristic diagrams is given to demonstrate the effects of various carding processes on sliver regularity.

New ways in the construction of card clothing.

R. Taine. *Melliand Textilber. 37, No. 2:* 139-141 (1956); *in German.* Through *BCIRA 36:* 244 (1956).

Possibilities of faults in carding are pointed out and improvements and innovations in card clothing are discussed, with reference to the Ovoflex card and the new Maquet flat card.

DRAWING AND ROVING B 3

High production drawing: some fundamental considerations.

L. H. Hance (Institute of Textile Technology). *Textile Research J. 26:* 385-388 (May, 1956).

The effect of increased speeds on maintenance costs, operational costs, quality of sliver, and subsequent processing are discussed as factors which should be considered in adopting high drawing speeds on present equipment designed for such speeds. 14 references.

High production with the Whitin Even-Draft draw frame.

E. K. Swift, Jr. (Whitin Machine Works). *Textile Research J. 26:* 388-393 (May, 1956).

An outline of the history and development of the Whitin Even-Draft draw frame Model M is followed by a discussion of its structural and textile processing features. Mill experience with the machine is also reported.

High production with metallic rolls.

J. R. Whitehurst (Ideal Industries, Inc.). *Textile Research J. 26:* 394-398 (May, 1956).

Theory and design of the Feathertouch Drafting System, using metallic rolls with ball bearing journals for both bottom and top rolls, are presented. Improvements under consideration are cited.

Saco-Lowell Versa-Matic drawing.

R. M. Jones (Saco-Lowell Shops). *Textile Research J. 26:* 398-406 (May, 1956).

The mechanical features of this new frame are described and illustrated with diagrams and photographs.

Successful drafting conversion improves yarn strength and regularity.

Tweedales and Smalley (1920) Ltd. *Globe Rev. 2, No. 2:* 53-59 (1956).

By converting from a 3-line roller system to the single apron system and spinning from single roving, the roving frame process has been eliminated. A comparison of the yarns produced shows that the yarn from the single apron drafting system is undoubtedly superior.

SPINNING, WINDING, TWISTING B 4

Features and adaptibility of the woolen ringframe. Part 8.

J. A. B. Mitchell. *Textile Mfr. 82:* 221-223, 229 (May, 1956).

The practical limitations of the relationship of twist to rate of yarn delivery and bobbin diameter and the relationship between yarn count and traveler size are discussed.

The scientist looks at the wool industry: worsted spinning. Part 2.

Wool Sci. Rev. No. 15: 3-13 (March, 1956).

Summary of new developments in high draft systems (Balmes, Casablancas "L" and Ambler superdraft processes) and improvements in spinning mechanisms for strengthening the yarn, equalizing yarn tension and reducing yarn tension, as well as description of the Prince-Smith centrifugal spinning system. Diagrams. 5 references.

The use of ring-spinning machines in vigogne and two-roller spinning.

W. Frotscher. *Melliand Textilber. 37, No. 2:* 135-138 (1956); *in German.* Through *BCIRA 36:* 245 (1956).

After a brief historical review, reference is made to developments in the construction of twisting tubes, ring rails, web dividers, etc. The present development in the ring-spinning machine construction has largely contributed to its introduction in vigogne and two-roller spinning, and particularly in cotton-waste spinning, replacing the out-of-date mule machine.

The development of the modern wet-ring-spinning-frame, the "Perfect" Wet Spinning-Frame.

W. Rohs and R. Otto. *Textil-Praxis (English ed.) No. 1:* 1-6 (March, 1956).

The Wet-Ring-Spinning-Frame of the firm Spinnbau GmbH, Bremen-Farge, is a construction of the "perfect-principle", especially well known in worsted yarn spinning, with spiral-geared spindle, movable spindle rail and stationary ring rail. Both sides of the frame have single drive by vertically flanged motors. Diagrams.

Whitin spindles. Part 9. Top drive type for filling.

Whitin Rev. 23: 2-6 (May, 1956).

Photographs and diagrams of Pioneer top drive spindle.

An easy way to adjust doffer jobloads.

M. Bowden. *Textile World 106:* 96-97, 141 (May, 1956).

A graphic formula system is described for calculating and explaining doffer work assignments.

Pointers to reduce twister problems.

A. L. Landau. *Textile World 106:* 110-111 (June, 1956).

Pointers on wet twisting, dry twisting, selecting rolls and threading yarn.

Modern developments in doubling machinery.

G. Dakin (British Cotton Industry Research Assoc.). *Textile Merc. 134:* 587-593 (April 13, 1956); 633-636 (April 20, 1956); 670-674 (April 27, 1956).

This lecture covers: doubling trough and delivery rollers; waster preventers; multi-groove and sintered metal rings; nylon travelers; the Hispano-Suiza ring spindle and drawing frame; ring doublers; uptwisters; false-twist machines; double twist spindle machines; machines for the production of continuous filament tire cords.

Doubler stop motion.

Tweedales and Smalley (1920) Ltd. *Globe Rev. 2, No. 2:* 38-40 (1956).

A simple, effective and reliable form of stop motion which can be applied to frames when doubling ply wound yarns from cheeses or doubling overend from cones. Photographs.

Progress in automatic small-package winding.

A. E. Muschamp. *Skinner's Silk & Rayon Record 30:* 482-485 (May, 1956).

New devices for use with the Muschamp Auto-

braid, Autothread, Autocone, Autoquill and Autospool winders are described and illustrated. Photographs.

YARNS B 5

The effect of cotton fiber strength on the properties of 2-ply carded yarns.

L. A. Fiori, J. J. Brown and J. E. Sands (Southern Regional Research Laboratory). *Textile Research J. 26:* 296-302 (April, 1956).

It was found that for cottons of comparable fiber length and weight fineness, the stronger fibered cotton produced the stronger 2-ply yarns. Also, differences in fiber strength do not affect twist-strength trends or percentage gain in strength of 2-ply over single yarns. The results of this study also indicate that fiber elongation is directly related to 2-ply yarn elongation. 14 references.

The structure of multi-colored yarns.

W. E. Morton (Univ. of Manchester). *(Letter to the editor). J. Textile Inst. 47:* T239-T240 (April, 1956).

Comparison of results obtained in determining fiber arrangement in spinning multi-colored yarns by the use of colored rovings (See *TTD 13:* 80 (1956)) versus a tracer fiber technique.

The arrangement of fibers in single yarns.

W. E. Morton. *Textile Research J. 26:* 325-331 (May, 1956).

See *TTD 12:* 524 (1955).

Here are the facts about Agilon yarn.

N. C. Armitage (Deering Milliken Research Corp.). *Modern Textiles Mag. 37:* 64-67, 72 (May, 1956).

The properties and characteristics of Agilon yarns, showing their wide versatility for a large variety of end products, are presented.

The reversible effect of temperature on the mechanical properties of tire yarns and cords.

J. W. Illingworth and W. F. Kilby (Dunlop Research Center). *Textile Research J. 26:* 243-254 (April, 1956).

It is concluded that the effect of temperature within the range 20°-160°C on the bone-dry strength of cellulosic yarns and cords is to produce a change in strength which is related in a linear manner to the reciprocal of the absolute temperature. This also appears to be the case for nylon and Terylene, although in the latter instance this relationship may be modified by the existence of a second-order transition point. In all the yarns and cords investigated the extension at a given load increases with temperature. The extension at break may either increase or decrease with temperature. For the viscose rayon yarns and cords, the work to rupture is approximately independent of temperature. For cotton and Fortisan, on the other hand, an increase in temperature produces a decrease in this quantity. Photographs. Tables. Graphs. 10 references.

FABRIC PRODUCTION C

WARPING, SLASHING, YARN PREPARATION C 1

Sizing and desizing.

H. Jalke. *Spinner u. Weber 74, No. 4:* 144-146 (1956); *in German.* Through *BCIRA 36:* 246 (1956).

Reference is made, in particular, to the use of water-soluble cellulose ethers (methyl celluloses and carboxymethylcelluloses) as sizing agents for rayon, cotton and synthetic fibers, and to enzymatic desizing by means of bacterial amylases, causing degradation of starch-containing sizes.

A dry slasher sizing system.

Hettwer and Co. (Texma). *Textile Merc. 134:* 625, 641 (April 20, 1956); *Textile Wkly. 56:* 1436-1438 (May 18, 1956).

New Austrian slasher sizing machine without drying cylinders or hot-air drying is specially designed for sizing viscose and man-made fibers. The machine uses a special type of size stated to be a wax-like substance with about 170°F melting point and containing no water. One of its special properties is that it is not only a good size but also a detergent. Consequently, the cloth, after weaving, can be desized in a simple manner before bleaching, dyeing or printing. Photographs.

Chart for determining yarn remaining on du Pont acetate tricot beams.

E. I. du Pont de Nemours and Co., Inc., Wilmington, March, 1956. 2 p. Technical Information Bulletin A-27.

Sectional warping.

Jean Gusken GmbH Maschinenfabrik. *Textile Wkly. 56:* 1178-1180 (April 27, 1956).

German machine combines simplicity with high performance and is suitable for warping all kinds of yarns in all counts.

Warp winding of jute yarns.

Jute Bull. 18: 269-272 (February, 1956).

New Fraser Type F Warp Winder developed to give high production at moderate yarn speeds with the minimum of operative fatigue is compared with high speed machines.

WEAVING C 2

Loom construction and setting problems.

H. Barlow. *Textile Recorder 74:* 53-55 (June, 1956).

The factors to be considered in drawing up a loom specification are discussed with particular reference to loom specialization, the selection of shuttles, and the lay and its associated parts. Diagrams.

Recent developments in automatic weaving.

C. Huff, Jr. (Draper Corp.). *Textile Bull. 82:* 84-87 (May, 1956).

Improved features on the Draper X-2 and XD looms are cited and mention is made of other loom improvements, e.g. No. 25 thread cutter, impregnated quill, etc.

Cloth beam and pegged cylinder control.

J. Martinek. *Melliand Textilber. 37, No. 2:* 162-163 (1956); *in German.* Through *BCIRA 36:* 247 (1956).

The driving mechanism described for controlling the cloth beam and the card cylinder on looms consists essentially of a pair of rocking cam-driven cog wheels by means of which a non-uniform (accelerated or retarded) movement can be produced.

The state of let-off motion development.

D. Schachoff. *Textil- u. Faserstofftech. 6, No. 2:* 75-80 (1956); *in German.* Through *BCIRA 36:* 247 (1956).

A detailed survey is made of the most frequently used let-off motion constructions, including friction brakes, rope brakes and combined brakes. 14 German patent references.

A new warp let-off and brake device.

J. Weiner. *Melliand Textilber. 37, No. 2:* 163-164 (1956); *in German.* Through *BCIRA 36:* 247 (1956).

The warp let-off and brake device described (German Patent 936 320) ensures a constant warp tension (from the full to the empty warp beam) and uniform let-off with elimination of streaks and weft bars, without the use of parts which are positively driven. The device can be fitted on to any type of loom.

Weft breakage control on the loom.

J. Schneider. *Melliand Textilber. 37, No. 2:* 151-158 (1956); *in German.* Through *BCIRA 36:* 247 (1956).

Weft stop motions and devices stopping the loom in a suitable manner are described, with special reference to weft-fork and weft-needle motions, a double weft motion with cam drive, weft stop motions for silk looms, devices for finding the broken weft with automatic mechanical reverse motion, and a catch locking device. Setting directions are given for the automatic mechanical reverse motion.

Picking stick motions in underpick looms with reference to the main patents.

H. Zippel. *Melliand Textilber. 37, No. 2:* 158-160 (1956); *in German.* Through *BCIRA 36:* 246 (1956).

The development of picking-stick motions for underpick looms is reviewed, with reference to the constructions of J. H. Paige (U. S. Patents 518 424 and 571 729), H. L. Goodwin (U. S. Patent 744 862), two German patents granted to Juan Picanol-Camps (Spain), and Adolph Saurer AG (German Patent 738 640).

New means for the passage of the shuttle.

P. Grivor. *Industrie Textile:* 41-44 (January, 1956); *in French.* Through *BCIRA 36:* 246 (1956).

Reference is made to a German invention based on the use of an electromagnetic drive (the driving force being produced by alternating current) and to a French suggestion, in which the problem of shuttle passage has been solved by allowing a current of air (from a blowing tube) to circulate between the warp threads and to cause the weft thread to go into the shed.

Multiple shuttle box mechanism.

J. Starkie. *Textile Mfr. 82:* 242-245 (May, 1956).

Details of the assembly and operation of drop boxes, circular box mechanism, control by pattern chain, pattern chain construction, card saving motions and box control by the shedding mechanism. Diagrams.

A study in loom fixing. Part 8.

F. D. Herring. *Textile Bull. 82:* 87-88 (May, 1956).

Checklist for broken swords to prevent recurrence of breakage.

Use a multipurpose guage to set loom parts.

W. C. Westbrook. *Textile World 106:* 130-131, 196-198 (May, 1956).

A pocket-size gauge is used to set dozens of loom parts and motions. If correctly and consistently used, the gauge can save repair parts, labor and downtime.

Don't forget basic loomfixing.

R. B. Pressley. *Textile World 106:* 116-117 (June, 1956).

The article points out the limitations of the use of gauges alone in loomfixing. It is stressed that since fully 90% of all loom troubles develop at the picking motion or in boxing the shuttle it is necessary to have a working knowledge of these loom parts in addition to knowing how to set them with gauges.

Fabric design on the automatic loom. Part 2.

A. L. M. Bayoumi. *Textile Recorder 74:* 56-57 (June, 1956).

Suggested fabric constructions for the Benninger non-stop two-shuttle automatic loom. Photographs. Diagrams.

Tight weft in woolen fabrics.

R. Petzoldt. *Textil-Praxis (English ed.) No. 1:* 17-22 (March, 1956).

The article gives a brief description of the fundamental cause of tight weft, and the essential points important for weaving practice, which may serve to eliminate this trouble, are treated in detail.

The problem of selvage in shuttleless weaving.

R. Claude. *Industrie Textile:* 39-40 (January, 1956); *in French.* Through *BCIRA 36:* 247 (1956).

The technique described is based on using at each edge of the fabric two distinctly overlapping warp threads and interlacing the successive weft threads alternately with these threads, taking care to tuck the end of the last weft thread into the next shed of the same warp thread.

How to make better loom studies.

E. R. Beckner. *Textile World 106:* 124-125 (May, 1956).

The technique of random weaving studies by the direct method and the ratio-delay method is briefly discussed.

KNITTING C 3

Large circular rib knitting machine for fine-knit goods for outer garments.

G. Kramer. *Textil-Praxis (English ed.) No. 1:* 31-34 (March, 1956).

An eight cam circular knitting machine measuring 30 inches in diameter and equipped with 20 systems is described. It is manufactured by Fouquet and Franz Machinenfabrik.

How to knit mixture fabrics.

D. K. Singer (Security Mills, Inc.). *Modern Textiles Mag. 37:* 38, 44, 47, 50 (June, 1956).

A detailed report on how to knit jersey-rib interlock plated tuck rib, laid-in, fleece, poodle, terry, and plush fabrics.

Knitting imitation suede fabrics.

V. Bird. *Knitter 20:* 36-37 (May, 1956).

Details of the production of plain interlock-type fabrics from mixture yarns containing a percentage of Rhovyl, the polyvinyl-chloride fiber produced by Societe Rhovyl, France.

Cut full-fashioned yarn costs by knitting directly from pirns.

S. Boyer. *Textile Ind. 120:* 165-169 (May, 1956).

Alteration in eyelets of conventional yarn boxes permits knitting yarn to balloon freely from pirns for uniform tension.

How to use Agilon stretch nylon in women's stockings.

C. G. Evans (Deering Milliken Research Trust). *Modern Textiles Mag. 37:* 68-72 (May, 1956).

The behavior of Agilon monofilament and multifilament yarns in stocking fabrics is discussed and illustrated with photographs. Suggestions for knitting with Agilon monofilament yarn and for finishing Agilon hose are given.

Nylon stockings tape-programmed to the wearer.

C. Fegley. *Control Eng. 3:* 114-115 (June, 1956).

The new size changing method described uses photoelectric circuits operated by a punched tape and does the job in a few seconds. The cost of the tape, control box, and accessories is relatively small compared to their mechanical counterpart. Diagrams.

Faults in knitted fabrics. Part 1. How to tackle an investigation. Part 2. Stripes due to variations in count.

J. Lomax. *Hosiery Trade J. 63:* 81-83 (March, 1956); 95-97 (May, 1956).

FABRICS C 4

Pilling of fabrics. A study of nylon and nylon blended fabrics.

M. E. Baird, P. Hatfield and G. J. Morris. *J. Textile Inst. 47:* T181-T201 (April, 1956).

A laboratory apparatus was used to study the pilling of nylon and nylon blended woven fabrics.

The following variables were studied; nylon content, fiber denier and staple length, yarn twist, doubling yarns, ends and picks, type of weave, milling, heat-setting, dyeing, wetting and flexing. The effects of cropping and of applying certain chemical finishes, the forces required to remove pills from fabrics and the extent to which fibers were withdrawn from fabrics under a given load were also determined. The pilling results obtained with the laboratory apparatus correlated with those obtained from small-scale wearer trials. It was found that pilling varies appreciably with the spinning system used. In general, fabrics made on the silk and worsted systems give the least pilling, those made on the cotton system give more pilling, and those made on the woolen system give the most pilling. The causes of pilling are discussed and methods for minimizing it are given.

Three-tone jacquard designs on automatic terry looms.

T. Hargreaves. *Textile Mfr. 82:* 234-235 (May, 1956).

Constructional particulars of three jacquard towels woven by a special terry jacquard of 624 hooks.

The manufacture and application of chenille.

F. Strecker. *Textil-Praxis (English ed.) No. 1:* 26-30 (March, 1956).

See *TTD 12:* 531 (1955).

New textile products from plastics.

G. A. Fowles (U. S. Department of Commerce). *Am Dyestuff Reptr. 45:* P326, P336 (May 21, 1956).

This paper presents a summary of the nonwoven fabric picture today along with predictions as to the immediate and long-range future.

Toughening up reinforced resins.

Carbide and Carbon Chemicals Co. *Chem. Eng. News 34:* 2586 (May 21, 1956).

New Dynel overlay technique gives tougher glass fiber-resins which are also more smooth and chemically resistant.

The effect of surface finishes on friction and fusion of parachute cloth and line.

V. Lavrakas and A. Katz (Lowell Technological Institute). Wright-Patterson Air Force Base, Ohio, Wright Air Development Center, 1955. 140 p. WADC Technical Report 54-323. Part 1.

Of the lubricants examined for minimizing or preventing the fusion of nylon parachute materials caused by frictional heat ten were classed as highly effective. Nylon parachute line coated with these lubricants was further subjected to breaking strength, fungus resistance, and ageing tests. No one lubricant was determined to be superior in all respects. The friction apparatus developed to evaluate the lubricant is described.

The effect of surface finishes on friction and fusion of parachute cloth and line.

V. Lavrakas and A. Katz. (Lowell Technological Institute). Wright-Patterson Air Force Base, Ohio, Wright Air Development Center, 1955. 46 p. WADC Technical Report 54-323. Part 2.

A belt friction apparatus was used to study the effect of speed on fusion and friction on lubricated nylon parachute materials. Primarily, three homologous series of high molecular weight organic compounds were tested as lubricants: high molecular weight fatty acids, alcohols, and monoesters. In their ability to prevent fusion, fatty acids were poorer than fatty alcohols, while fatty alcohols were poorer than fatty monoesters. As the speed of rubbing increases, the resistance to fusion of lubricated nylon parachute materials decreases rapidly, and at high speeds (75 ft/sec) this resistance falls to alarmingly low levels. The molecular weight of the lubricants was investigated and found to be an important factor.

Aerodynamic heating of parachute ribbons.

L. C. Block. (Lowell Technological Institute). Wright-Patterson Air Force Base, Ohio, Wright Air Development Center, 1955. 52 p. WADC Technical Report 54-572.

A theoretical evaluation of the expected temperature rise of Dacron and nylon ribbons in high velocity flight was carried out. Wind tunnel tests were subsequently performed on the basic ribbon and ribbons of modified design. The results showed that the experimental values of the heat transfer coefficient agreed very well with the theoretical values. Changes in ribbon design and ribbon material did not effect an improvement in the heat transfer characteristics of the basic sample.

A study of the effects of fabric geometry variables on air permeability.

W. O. Perry. Wright-Patterson Air Force Base, Ohio, Wright Air Development Center, 1955. 55 p. WADC Technical Report 54-574.

A series of specially designed nylon parachute fabrics was selected to represent extremes in cloth construction and to demonstrate fundamentals of fabric geometry. By means of a somewhat unusual test arrangement it was possible to indicate the

relationship of fabric geometry to air permeability at several pressure differentials. Through the process of establishing the ratio of total fabric area to interstice area, data were obtained on yarn widths as they lie in the cloth. These data were obtained on a variety of twist constructions to provide a knowledge and background of design data for present application and future studies in this area.

Study of the effect of twist in yarns on parachute fabrics.

C. C. Chu, C. A. Lermond and M. M. Platt. (Lowell Technological Institute). Wright-Patterson Air Force Base, Ohio, Wright Air Development Center, 1956. 332 p. WADC Technical Report 55-104.

This report includes: (1) a discussion of the effect of varying yarn twist on the geometrical and mechanical properties of parachute fabrics; (2) a study of the mechanics of air flow through fabric structures and (3) a compilation of all accumulated data and findings together with test procedures, techniques, graphical representations and photomicrographs. In general, the following trends were evident: with an increase in the yarn twist there was an increase in fabric thickness, yarn denier, vertical yarn diameter, area between yarns and light penetrability and a decrease in horizontal yarn diameter.

Development of Dacron parachute materials.

H. J. Bickford, T. L. Rusk, Jr. and D. K. Kuehl (Cheney Bros.) . Wright-Patterson Air Force Base, Ohio, Wright Air Development Center, 1956. 45 p. WADC Technical Report 55-432.

Processing and evaluation of dimensional stability, strength, air permeability and seam efficiency of seven Dacron fabrics are reported. Most of the original requirements for parachute fabrics can be attained.

FINISHING AND CHEMICAL PROCESSING D

Table of textile assistants.

St. Jost. *Textil-Rundschau 11, No. 1:* 22-29 (1956); *in German.* Through *BCIRA 36:* 250 (1956).

The review, in tabular form, gives the trade names, producers, composition, uses, and special advantages of sizing and desizing agents, lubricants, wetting agents, detergents, bleaching assistants, stripping and levelling agents, fixers, printing assistants, complex formers, plasticizers, finishing agents, crease- and shrink-proofing agents, flame- and water-proofing compounds, antistatic agents, delustering agents, gas-fading inhibitors, slippage-preventing agents, insecticides and fungicides, emulsifiers, and anti-foaming agents.

Chemistry and physical chemistry of textile auxiliaries. Volume 2. (Chemie und physikalische Chemie der Textilhilfsmittel.)

H. Frotscher. VEB Verlag Technik, Berlin, 1955. 174 p. *In German.* Through *BCIRA 36:* 250 (1956).

This volume relates to oils and lubricants, dressing agents for fibers (including antistatic agents), sizing and desizing materials, and finishing agents. 276 references. For volume 1 see *TTD 12:* 247 (1955).

How to dye and finish Dynel-cellulosic fiber blends.

F. C. Rippner and H. K. Townsley (Carbide and Carbon Chemicals Co.). *Textile Ind. 120:* 117-119 (May, 1956).

This brief summary covers equipment and dyeing practices, dyestuff selection, and resin finishing practices.

Automatic finishing machine combinations.

R. Gunther. *Spinner u. Weber 74, No. 4:* 153-155 (1956); *in German.* Through *BCIRA 36:* 250 (1956).

The three machines (described and illustrated), which were combined to one automatically working system, include a padding machine, a cylinder drier and a tenter.

CHEMICAL PROCESSES D 1

Proposed method of open-width bleaching for cotton piece goods.

P. J. Wood (Royce Chemical Co.). *Am. Dyestuff Reptr. 45:* 277-281 (May 7, 1956).

The proposed apparatus for the continuous open-width desizing and bleaching of cotton goods consists of the desizer; the festoon type continuous steaming chamber (boil-off); the carbonic and neutralizing chamber; and the shorter festoon type continuous steaming chamber (bleach). Each unit of the range is furnished with means for synchronizing it with every other unit by means of compensators connected with speed-control devices. The advantages cited are: continuous rather than intermittent desizing; uniform steam application; elimination of oxycellulose and hydrocellulose formation; and elimination of break-marks, chafe-marks and distortion as a result of open-width handling at all times. Diagrams.

Is kier-bleaching out-dated?

A. Richter. *Melliand Textilber. 37, No. 2:* 188 (1956); *in German.* Through *BCIRA 36:* 249 (1956).

The author maintains that, although kier-bleaching of cotton cannot be carried out as a continuous process, it has considerable economic advantages and, as regards strength or morphological structure of the fibers, there is no objection to alkaline kier-bleaching, either in open tanks or under pressure.

Woolen cloth milling. Parts 1 and 2.

L. Bellwood. *Textile Mfr. 82:* 147-149 (March, 1956); 253-255 (May, 1956).

The aims of milling are outlined and the advantages and disadvantages of acid and alkaline milling are enumerated. Many of the factors involved in efficient soap milling techniques, including application of soap, the amount used, temperatures, fibers involved and machine design are considered. Grease, water and neutral milling are briefly mentioned.

Effects of changes in the structure of cotton cellulose upon the qualities of cotton products.

W. M. Scott. *J. Textile Inst. 47:* P235-P247 (April, 1956).

Following a brief summary of the present knowledge of the structure of cotton cellulose, the various types of chemical treatments that can be used to bring about changes in the molecular structure, (e.g. mercerization, decrystallization, esterification, etherification and cross-linking with polymers) are discussed and it is shown how these changes can affect the qualities of the resultant cotton products. 38 references.

The effect of partial acetylation on the pore-size distribution of cotton fabrics.

E. Honold, R. E. Boucher and E. L. Skau (Southern Regional Research Laboratory). *Textile Research J. 26:* 263-271 (April, 1956).

In order to gain some insight into the structural modification of a fabric after partial acetylation, the pore-size distributions of the void volumes within the fabric boundaries were determined on a cotton-sheeting series. whose acetyl content ranged from 0.0 to 28.2% acetyl. As the acetyl content of the sheeting samples increased, there was a general downward trend in total void volume within the interfiber region. Further analysis of the interfiber (intrayarn) void volumes by means of pore-size distribution curves showed a shift of the whole curve toward a smaller pore-radius position as acetylation increased up to 14.6%. At higher acetyl contents the predominant pore size (peak position) remained approximately the same, but there was a diminution in volume at each pore-radius position throughout the greater portion of the interfiber and interyarn pore-size ranges. Photographs. Tables. Graphs. 9 references.

Note on the preparation of a partial ester of cotton cellulose in fabric form.

A. L. Bullock, W. T. Schreiber and J. D. Guthrie (Southern Regional Research Laboratory). *Textile Research J. 26:* 340-341 (May, 1956).

This paper describes a method of preparing, possibly for the first time, a partial capric ester of cotton cellulose in fabric form, employing conditions that do not degrade the cellulose significantly. The method consists of a presoak in pyridine followed by treatment with capric anhydride. Partial esterification was shown by dyeing characteristics and chemical analysis of the modified cotton; by hydrolysis of the treated fabric and determination of the neutralization equivalent of the isolated capric acid; and by the preparation of a derivative of the capric acid recovered from the fabric. The fabric showed considerable water repellency and some rot resistance.

The rotproofing of viscose rayon. Part 2. Treatment of viscose rayon with iron and chromium salts.

J. W. Bell and M. M. Ramsey. *J. Soc. Dyers Colourists 72:* 168-171 (April, 1956).

Although Mineral Khaki treatments are recommended for proofing cotton against microorganisms, certain types of chromium and iron pigmentation are shown to be relatively ineffective when applied to viscose rayon, at least when fairly drastic test methods are employed. The proof is slightly improved by using potassium chromate as the developing agent, but the sexavalent chromium produced is not fast to leaching. Little improvement is effected by incorporating copper. The viscose rayon takes up considerably less pigment than does cotton under similar conditions, but even where the amounts are almost the same the rayon is still much less resistant to microorganisms. This difference may be partly due to the lower inherent resistance of viscose rayon. When chromate development is used the rayon appears to be less damaged (as measured by cuprammonium fluidity) than cotton similarly treated. 16 references.

Profile polyamide fibers.

H. Bohringer. *Textil-Praxis (English ed.) No. 1:* 15-17 (March, 1956).

A surface structure of favorable character for textile purposes is obtained by treatment with

a zinc chloride solution at room temperature, followed by an aftertreatment with water. Other methods of fiber treatment are discussed.

The finishing of blends.

J. E. Smith. *DuPont Tech. Bull. 12:* 23-26 (March, 1956).

Formulations for finishing Dacron, Orlon, and nylon blended with cotton, rayon, or wool with Zeset S, Panalon CR and Zelan AP for increased shrinkage control or dimensional stability, resiliency or crease resistance, decreased sensitivity to swelling by water and improved bodying characteristics.

Zeset S fabric stabilizer.

DuPont Tech. Bull. 12: 27-45 (March, 1956).

The article describes the chemical and physical properties of Zeset S and the physical properties of Zeset stabilized cotton and rayon fabrics, as well as application procedures for its use in crease resistant and embossed and glazed finishes. Formulations for its use in conjunction with stiffening, softening and water repellent agents are given.

Silicones and their use in textile finishing.

W. Weltzien and G. Hauschild. *Melliand Textilber. 37, No. 2:* 199-203 (1956); *in German.* Through *BCIRA 36:* 252 (1956).

In this review, the authors discuss water-repellent films consisting of organo-silicon compounds, water-repellent finishing of textiles with silicones, special silicone impregnating agents (dimethyl-polysiloxane and so-called H-siloxanes), solvent and emulsion impregnation, and silicon determination (alkaline oxidation of the substance tested with sodium peroxide).

Modern resin finishing of textiles: practice and research.

G. Landells. *J. Soc. Dyers Colourists 72:* 137-146 (April, 1956).

The lecture surveys the development of the application of synthetic resins (preformed vinyl polymers, urea-formaldehyde resins, THPC, organic isocyanates, and silicones) to textiles, and the interrelation of practice and research. 29 references.

Anti-shrink textile finishes based on mechanical and chemical processes.

H. Gensel. *Melliand Textilber. 35, No. 10:* 1130-1134; *No. 11:* 1260-1262 (1954). Translation in *Textile J. Australia 31:* 44-48, 74-77, 85-86 (March 20, 1956).

The principles and the techniques of the mechanical processes for shrinkproofing cellulosic textiles, in particular the Sanforizing and Monforizing processes, and shrinking on tenter frames with overfeed and on the Haas Short-Loop Dryer, are discussed, as well as the customary chemical, anti-shrink finishes for cellulosic fibers, and the techniques employed for carrying them out on an industrial scale. Mechanical (e.g. London shrunk) and chemical (e.g. chlorination and resin finishing) processes for wool are also referred to. Patent and literature references are cited.

New finishes as an aid to selling.

G. Landells. *Textile Wkly. 56:* 1508-1520 (May 25, 1956).

Outline of the advantages of mercerizing, compressive shrinkage, the crease-resist process, the anti-shrink process on wool and setting of synthetic fibers.

DYEING AND PRINTING D 2

Improvement of crockfastness in naphthol-dyed fabrics.

E. A. Murray and others. (AATCC. Piedmont Section.). *Am. Dyestuff Reptr. 45:* P286-P308 (May 7, 1956).

Studies have been made of the effects of a number of variables in the naphthol-dyeing process, among them the following: coupling pH, coupling temperature, rinsing before coupling, steaming before coupling, soaping methods, addition of alcohol to the coupling bath, crocking behavior of various dyeing combinations and effect of finishes applied after naphthol dyeing. The research reported herein shows there is no simple remedy for the problem of crocking but several contributory causes, not previously investigated, have been defined. Photographs. Tables. 24 references.

How to dye direct colors continuously.

R. W. Pinault. *Textile World 106:* 102-103, 180-184 (May, 1956).

Dyehouse practices.

Wool dyeing: the loss in weight and its reduction.

J. Bauer (Collins & Aikman Corp.). *Am. Dyestuff Reptr. 45:* P253-P259 (April 23, 1956).

Apart from losses of wool due to handling there is a measurable loss of wool substance that occurs due to protein hydrolysis. The extent of this loss and how it proceeds with time, temperature, and certain chemicals is shown in studies made on wool subjected to mock dyeings. The extent of such loss may be reduced by the use of certain cross-linking chemicals without materially affecting the dyeing cost. Related wool properties

such as alkali solubility, fiber strength and elongation are also shown.

Microscopical studies on wool dyeing; preparation and use of longitudinal sections.

H. E. Millson (American Cyanamid Co.). *Am. Dyestuff Reptr. 45:* P331-P336 (May 21, 1956).

A new technique is suggested for examining fibers by sectioning longitudinally. Microscopical examination of fibers by means of longitudinal and cross sections has proved to be a valuable tool in the study of the art of fiber processing and dyeing. The use of these sections provides means for examination of the interior structure of fibers. Such means have hitherto been unobtainable. By the proper application of these methods, it is possible to gain a better understanding of the changes which occur during the dyeing and chemical treatment of fibers. Photographs. 11 references.

Latest developments in the fast dyeing of wool.

W. Justus. *Textil-Praxis (English ed.) No. 1:* 40-46 (March, 1956).

Fast wool dyeing is attained by the application of Isolan dyes combined with Avolan IW leveling agent in high temperature dyeing.

Dyeing resist processes for wool.

Wool Sci. Rev. No. 15: 14-25 (March, 1956).

Appraisal of the proposed dyeing resist processes (acetylation, glyoxal-*bis*-sodium bisulfite, R-salt with formaldehyde, alkaline chlorination, magnesium bromoacetate, tannic acid, synthetic polymers, sulfamic acid, and Maifoss process) and their limitations. 12 references.

Union dyeing.

T. Bates. *Textile Mfr. 82:* 250-252 (May, 1956).

Talk on technique of dyeing and dyestuff selection for wool/nylon and wool/cellulosic fibers.

How to dye Acrilan-wool blends.

W. H. Hindle (Chemstrand Corp.). *Textile World 106:* 116-117 (May, 1956).

Practical plant methods and suitable dyes for union dyeing, cross dyeing and resist effects.

Dyes for polyacrylonitrile fibers.

R. Hunlich. *Tex. 15, No. 1:* 59-60 (1956); *in Dutch.* Through *BCIRA 36:* 190 (1956).

Acid dyes with high, medium and low affinity for polyacrylonitrile fibers are listed and directions are given for precleaning and dyeing the material (by the cuprous-ion method), with special reference to the use of reducing agent D (produced by the Farbenfabriken Bayer AG). The effect of phenol addition on the depth of color, optimum pH of the dye-bath, dyeing temperature, and after-treatment of the dyeings are briefly discussed.

The importance of spun-dyed artificial and synthetic fibers.

R. Priou. *Teintex 21, No. 2:* 99-107 (1956); *in French.* Through *BCIRA 36:* 242 (1956).

The history of spin dyeing is briefly reviewed and the raw materials used and processes employed in the reproduction of colors are discussed in detail.

Whiter, more dyeable Orlon acrylic staple and tow.

L. Bidgood, Jr. *DuPont Tech. Bull. 12:* 13-18 (March, 1956).

The new more dyeable staple or tow is designed to be identical to type 42 (or type 39) in all properties and in the products manufactured from it except for color and dyeability. With the new staple, present formulations, particularly those made with cationic dyes will have to be changed slightly and increased amounts of retarder will be necessary in light to medium shades. Because of the cost problem involved, a new retarder, Du Pont Retarder DO, has been developed that functions like Du Pont Retarder LAN but is three times as effective.

Dyeing stretchable yarns and fabrics of du Pont nylon.

E. I. du Pont de Nemours and Co., Inc., Wilmington, February, 1956. 4 p. Technical Information Bulletin N-60.

Procedures for dyeing stretchable yarns and fabrics containing 100% nylon or blends of nylon and cotton.

Dyeing taffeta fabrics of Du Pont nylon.

DuPont Tech. Bull. 12: 19-22 (March, 1956).

A new process makes possible improved level dyeing of acid colors on taffeta fabrics of semi-dull and dull nylon, when applied on a closed jig. Limited experience on both laboratory and mill runs has been encouraging with results showing increases in dye depth and dye rate and, in some cases, improved lightfastness. The dyeing procedure is given.

Latest dyeing methods for stretch hosiery.

J. V. Boone (Geigy Chemical Corp.). *Textile World 106:* 129-131 (June, 1956).

Stretch-yarn dyeing methods for hosiery discussed include: selection of dyes for various shade ranges, workable dyeing procedures for three classifications of dyes, aftertreatments that improve

washfastness and methods of dyeing for ingrain hose.

Technology of disperse dyes. Part 2. Dye carriers.

A. Datyner. *Man-Made Textiles 32:* 63-65 (May, 1956).

A discussion of the mechanism of action of carriers is followed by a brief survey of carriers and their evaluation on Terylene.

The polarography of azo dyes.

J. de O. Cabral and H. A. Turner. *J. Soc. Dyers Colourists 72:* 158-167 (April, 1956).

Twenty-one water-soluble azo dyes—mono-, bis-, tris-, and tetrakis-azo, selected from the acid, basic, mordant, and direct dyeing classes—have been examined by polarographic methods. The object was to determine how far these methods could be used for the identification and estimation of azo dyes in general. With a few exceptions, the half-wave potential corresponding to the reduction of azo groups does not change very greatly from one dye to another, and this quantity has therefore little value as a general means of identification. When the correct experimental conditions have been established, the polarographic method lends itself to the accurate estimation of all the dyes that have been studied. The data is summarized in a table. 14 references.

The classification of dyes by their dyeing characteristics.

W. Beal. *J. Soc. Dyers Colourists 72:* 146-158 (April, 1956).

The methods used for preparing classifications of dyes (primarily rate of exhaustion and degree of migration) for application to wool and cotton are reviewed, and particular reference is made to the graphical representation of dyeing characteristics. 11 references.

Eastofix dyes.

J. M. Straley and D. G. Carmichael (Eastman Kodak Co.). *Am. Dyestuff Reptr. 45:* P260-P262 (April 23, 1956).

The Eastofix dyes for cellulose acetate materials are fairly simple metallizable molecules of widely differing configurations, and the fixing salt is a metal-containing system capable of penetrating the fiber, easily reacting with the dyes, and, after usage, being easily removed from the fiber. Details for dyeing or printing are given along with information on matching and fixing.

Experimental application of a turbo-dynamic principle in dyeing.

D. Fornelli. *Tinctoria 53, No. 2:* 49-51 (1956); *in Italian.* Through *BCIRA 36:* 250 (1956).

A new experimental dyeing machine, based on a turbo-dynamic principle is described. Its advantages comprise (a) perfect penetration of the dye into the material, (b) reduction of dyeing time, and (c) the possibility of dyeing at temperatures below boiling point and at normal pressure.

Practical aspects of dyeing in the Burlington beam machine.

P. L. Meunier (E. I. du Pont de Nemours and Co., Inc.). *Am. Dyestuff Reptr. 45:* P327-P330, P336 (May 21, 1956).

The operation and economic features of processing in the Burlington machines are described. Throughout the discussion the advantages of the Hy-Press machine for dyeing the new synthetic fibers and blends of these with natural fibers are emphasized.

Historical notes on the wet-processing industry. Part 11. Coppers, kettles and vats.

S. M. Edelstein (Dexter Chemical Corp.). *Am. Dyestuff Reptr. 45:* 245-249 (April 23, 1956).

The equipment for dyeing in an early American dyehouse was of the simplest. The techniques for carrying on the various dyeing processes themselves were often quite complicated, however, and required the greatest of skill in manipulation by the dyer. The detailed preparation of indigo vat is given as an example of the complexity.

Heating of water in dyeing and finishing plants by direct steam injection.

L. Walter. *Textielwezen 11, No. 12:* 15-20, 25 (1955); *in Dutch.* Through *BCIRA 36:* 157 (1956).

Various installations for direct steam injection into liquids are described, with special reference to noiseless heaters and steam-blowers. They can be fixed inside or outside the tank. Some of them not only heat the water but also cause circulation of the bath.

Progress in dyeing and printing with vat dyes.

Industrie Textile: 59-65 (January, 1956); *in French.* Through *BCIRA 36:* 251 (1956).

The method of dyeing with dyes in pigment state is based on complete impregnation of the material to be dyed with the non-solubilized (non-vatted) dye in the form of a very fine dispersion, the impregnation being followed by reduction and fixation of the dye in situ. On piece goods, best results are obtained by carrying out the pigmenta-

tion in the padding machine and the reduction on the jig. The method is described in detail, as well as the du Pont continuous pad-steam process and the du Pont method of developing prints made with vat dyes.

Pigments for textiles.

G. F. Jones (Imperial Paper & Color Corp.). *Am. Dyestuff Reptr. 45:* P263-P271 (April 23, 1956).

Following a brief discussion of the history of the use of pigments in the textile industry, the author reviews the present fields for pigment application to textiles. Pigments generally fall into one of the following classifications: inorganic salts, inorganic oxides, azo types, coordinated metal complexes, and metal toners. The bulk of this discussion is devoted to pigment types by color grouping.

Print on cotton with stepless control.

Rice Barton Corp. *Am. Textile Reptr. 70:* 67-69, 81 (May 17, 1956).

Hydraulic single color, rotary, intaglio printer is described.

MECHANICAL PROCESSES D 3

A new shearing machine for velvet and velour.

O. Reinhardt. *Melliand Textilber. 37, No. 2:* 203-204 (1956); *in German.* Through *BCIRA 36:* 251 (1956).

The external appearance of the machine and general construction, arrangement of the working parts and cloth movement, the cutting cylinder and cloth velocity, and the cutting motion and its adjustment are described and general technical data (dimensions, driving means and power consumption) are given. The machine was constructed by the firm F. Muller, Gladbach, in collaboration with the processing industry.

DRYING D 4

The principles of drying.

J. Kinapenne. *Revue Textilis 12, No. 2:* 41-51 (1956); *in French.* Through *BCIRA 36:* 252 (1956).

Tables and diagrams are given to show the relationship between temperature, air humidity, vapor pressure and the drying capacity of driers.

TESTING AND MEASUREMENT E

1956 instrumentation survey.

Fibres 17: 136-146 (May, 1956).

FIBERS E 1

Progress in the electron microscopy of textile fibers.

J. C. Guthrie. *J. Textile Inst. 47:* P248-P268 (April, 1956).

This survey on the use of the electron microscope in the textile field includes references to instruments available, techniques and applications. Photographs. 155 references.

The application of electron microscopy to synthetic fibers.

R. G. Scott and A. W. Ferguson (E. I. du Pont de Nemours and Co.). *Textile Research J. 26:* 284-296 (April, 1956).

A review of present electron microscope techniques used in the study of synthetic fibers is presented. These include surface replication and ultrathin sectioning. A new method is introduced in which the region to be studied is made insoluble either by chemicals or 60 kv. electrons and then the unaffected region is removed by solvents. The application of this technique to surface or internal fiber structure is reported. Photographs. 20 references.

Relations between different measures of maturity and fineness of cotton.

E. Lord. *J. Textile Inst. 47:* T209-T221 (April, 1956).

In the caustic soda swelling test for fiber maturity originally developed at the Shirley Institute and largely adopted as British practice, fibers are classed into Normal, Thin-Walled, and Dead groups. A quantity termed the maturity ratio may be calculated from the proportions of fibers in these three groups and is directly proportional to the degree of fiber wall thickening. Elsewhere, particularly in the United States, it is common to class fibers into but two categories, known as Mature and Immature. Empirical relations are developed between the two systems of classification and the proportion of Mature fibers in a sample may be transformed into an estimate of the maturity ratio. These relations permit estimates of intrinsic fiber fineness to be made, from American test results, by calculating the fiber weight per inch a cotton would give at an arbitrary standard maturity level. 6 references.

Improved sampling and Shirley Analyzer operating procedure.

J. V. Shepherd (U. S. Cotton Ginning Research Laboratory). *(Letter to the editor). Textile Research J. 26:* 311-312 (April, 1956).

A pinch method of sampling is described

which is desirable for obtaining a representative specimen from a large sample for nearly all fiber tests, especially those requiring only a small amount of fiber. The new sampling method and test procedure is compared with the regular sampling method and test procedure.

Comparison of staple diagrams from conventional methods with the staple diagram of the Diagraph.

W. Wegener and E. G. Hoth. *Melliand Textilber. 37, No. 2:* 141-150 (1956); *in German.* Through *BCIRA 36:* 256 (1956).

In continuation of previous articles, the authors review methods for measuring fiber length, comparing the results with those obtained by using the Diagraph. The diagrams, obtained on cuprammonium rayon, Perlon, wool and cotton fibers by means of capacitive scanning are in relatively good agreement with those obtained from fiber-length measurements. The mean fiber length and variation coefficient also agree with the values obtained from these measurements. 19 references.

A high-speed fiber extensometer.

M. M. Cross and D. A. Garrett. *J. Textile Inst. 47:* T222-T231 (April, 1956).

The apparatus described has been designed to perform a range of operations similar to those carried out on the Instron and Cambridge machines, but with a range of testing times from 0.01 to 0.5 seconds. Provision is made for continuous variation of rate of extension up to 1,000% per second and for rapid reversal of the motion at a similar speed when required. Load and extension are both measured electronically, enabling a load-extension curve to be traced on a cathode ray oscillograph for photographic recording. Alternatively, stress-time or strain-time phenomena can be studied by recording with a continuous-film camera. The over-all accuracy is of the order of ±3-4%. Diagrams. 5 references.

Fiber fineness density.

C. Z. Carroll-Porczynski (British Belting & Asbestos Ltd). *Asbestos 37:* 2-10 (May, 1956).

An instrument for measuring the degree of opening of asbestos fibers is described. It is a modified version of the WIRA instrument for the measurement of the average diameter of wool fibers.

The analysis of mixtures of protein and non-protein fibers by means of sodium hypochlorite.

E. Druce. *J. Textile Inst. 47:* T202-T208 (April, 1956).

A method is described in which protein fibers, natural or artificial, present in a mixture with non-protein fibers, are dissolved by means of alkaline sodium hypochlorite solution and the residual non-protein fibers are collected and weighed. No other fibers, with the exceptions of raw cotton and cellulose acetate, lose appreciably in weight in the reagent under the prescribed conditions. Raw cotton loses about 3% of its weight in the solvent, and this loss can be allowed for by the use of a correction factor. The method is not recommended for mixtures containing cellulose acetate. The accuracy of the method is demonstrated by analyses of a large number of laboratory-prepared mixtures and spun blends. 10 references.

The estimation of sulfhydryl groups in wool by means of 1-(4-chloromercuriphenylazo)-naphthol-2. Part 1. Experiments on intact fibers. Part 2. Experiments on supercontracted and pulverized fibers.

R. W. Burley. *Textile Research J. 26:* 332-340 (May, 1956).

Part 1 gives directions for increasing the reliability of the method for use on intact fibers and describes the standardization of the reagent on known sulfhydryl compounds. Within the specified limits of pH and water content, formamide solutions of the reagent may be used for reproducible and extremely sensitive estimations of sulfhydryl groups in intact wool fibers. Part 2 describes how the method can be shortened by using supercontracted and pulverized wool. For coarse fibers, pulverization seems preferable. Pulverization also appears to be suitable for chemically modified fibers. Super-contraction may be recommended for rapid results on untreated wool.

YARNS E 2

On the Zellweger evenness tester, the Fielden-Walker evenness tester and their integrators.

W. A. Nienhuis, J. Stomph and C. J. van Zwet. *J. Textile Inst. 47:* P269-P277 (April, 1956).

The coefficient of variation of a sliver was determined with the Zellweger and Fielden testers in order to ascertain the reliability of these instruments. Both testers gave a coefficient of variation which is somewhat less than the actual value. The direction in which a sample is measured also will influence the readings. Consequently, the pattern of the coefficient of variation measured along the sample in two directions may differ. It is concluded that in many cases both testers can be applied and they can give valuable information

in practice, provided they are used judiciously. The testers are less suitable for precision measurements; in that case the utmost caution should be taken.

The new Vieluba meter for measuring the regularity of threads.

A. Barella, L. Viertel, A. Lupresti and P. Salvany. *Fibres 17:* 132-135, 149 (May, 1956).

The construction and operation of a new meter for measuring the regularity of threads is described. The meter combines both photo-electrical and optical methods of examining thread-diameter. A new type of integrator specially designed to be coupled with the Vieluba regularity meter directly indicates the range values of the thread being examined.

An evaluation and comparison of evenness testers.

E. Honegger (Swiss Federal Institute of Technology). Reply: W. T. Waters (Courtaulds (Alabama) Inc.). *(Letters to the editor). Textile Research J. 26:* 351-352 (May, 1956).

The letter and answer refer to a paper by W. T. Waters *(TTD 12:* 444 (1955)). Honegger criticizes the use of the Model A Uster tester (now discontinued) instead of the improved Model B.

Measuring the elastic properties of yarns.

W. J. Morris. *Skinner's Silk & Rayon Record 30:* 500-505 (May, 1956).

The British Rayon Research Association Strainometer is an instrument that continuously measures and records small variations in the longitudinal elastic properties of yarn. It has proved to be a sensitive means of detecting yarn overstrain caused by incorrect winding conditions, and of yarn irregularities due to other causes. Its construction and operation are described and illustrated with results obtained from various yarns and packages.

Statistical tests of color blending in rovings.

M. J. Coplan and W. G. Klein (Fabric Research Laboratories, Inc.). Reply: W. J. Onions and A. G. Hampson (Leeds Univ.). Comparison: M. Hannah (Leeds Univ.). *(Letters to the editor). J. Textile Inst. 47:* T232-T237 (April, 1956).

Letters relate to article by Hampson and Onions *(TTD 12:* 414 (1955)) and discuss the validity of their use of the Poisson distribution for blend components.

A flexible pressure gauge for use with textile packages.

K. K. Schiller and E. Cohen (British Rayon Research Assoc.). *(Letter to the editor). J. Textile Inst. 47:* T237-T239 (April, 1956).

A gauge for measuring the stress system in packages of varying sizes is described.

Blended yarns from wool and chemical fibers. Part 2. Determination of the wool constituent in mixed yarns from wool, polyamide, polyacrylonitrile and polyester fibers.

H. Zahn and E. Kratzsel. *Melliand Textilber. 37, No. 2:* 177-184 (1956); *in German.* Through *BCIRA 36:* 258 (1956).

The most frequently used methods for determining the wool content in yarn blends with polyamide, polyacrylonitrile and polyester fibers are discussed and the potassium hydroxide, formic acid, dimethyl formamide, and Sesolvan-NK methods are described. The use of potassium hydroxide was found to be a reliable method for determining wool in polyester-fiber mixtures. Directions for carrying out the method and the corrections required are given. Owing to its general applicability to a large number of wool-chemical fiber mixtures, the method is suggested as a standard procedure.

FABRICS E 3

Choice of background for detergent efficiency evaluation.

D. W. Stephens and C. B. Brown. *ASTM Bull. No. 214:* 45-46 (May, 1956).

The results obtained in evaluation of detergent efficiency of four detergents by measuring the reflectance of cotton test pieces for five backgrounds are presented. A Hunter Multipurpose Reflectometer with green filter was used to make the reflectance measurements. On the basis of the data obtained it is recommended that a white background be used for standardization of detergency.

The evaluation of bacteriostatic reagents and methods of application to textile fabrics.

J. C. Sherrill (Texas State College for Women). *Textile Research J. 26:* 342-350 (May, 1956).

The application of a quantitative chemical method to problems of evaluation of bacteriostatic reagents and of methods of application is described. The method utilized involves determination of ammonia formed by proteolytic activity, by means of a semi-micro Kjeldahl distillation of a standardized urea-citrate medium which has been inoculated with *Proteus vulgaris* and incubated at 37°C. (98.6°F.) for 18 hours.

The precision of the method and the specificity is indicated in comparison with former methods of assessment. Detailed procedures and results using four distinct classes of chemical compounds in direct dilution and impregnated on textile fabrics are given. The effect of chemical type, reagent concentration, and fabric type is presented. Field trials in commercial plants also are included.

A comparison of gradient and flotation methods for determining density of degraded cotton.

J. C. Austin and J. S. Roberts. *Textile Research J. 26:* 303-309 (April, 1956).

Using specific gravity columns, the densities of a series of laundered cotton fabrics at 13 levels of regain were determined and compared with values obtained by a flotation method. Pretreatment to remove entrapped air included either centrifuging in organic liquids or boiling in xylene. With an unlaundered cotton control at low levels of regain, where presumably no mechanically held water is present, the methods gave comparable results. Variation in values appeared in the control above 3% regain and in the cottons degraded by laundering at all humidity levels. Boiling laundered samples in xylene caused a significant rise in density value. A statistical analysis showed that the gradient method is less sensitive and less reliable than the flotation method for density determinations on degraded cottons. 17 references.

Testing of textiles. Abrasion tests on textile surfaces.

German Standards Committee. *Melliand Textilber. 37, No. 2:* 212-213 (1956); *in German.* Through *BCIRA 36:* 258 (1956).

The draft specification DIN 53 863 gives a definition of abrasion and describes methods and devices for testing abrasion on textile surfaces, with reference to the abrading agent, sampling and preparation of the sample, the abrasion test, and evaluation of the results.

The judgment of harshness of fabrics.

H. Bogaty, N. R. S. Hollies and M. Harris (Harris Research Laboratories). *Textile Research J. 26:* 355-360 (May, 1956).

This paper describes some efforts to evaluate the subjective handle of fabric harshness in an organized and quantitative way. Studies using a single type of fabric made from wool and blends with mohair, viscose, and nylon were made by means of a panel technique. The harshness judgments are discussed in terms of certain structural characteristics of the fabrics tested. It is suggested that the subjective harshness is related to the diameter of the fibers used and inversely to the length of the fibers projecting from the cloth surface. 10 references.

Construction and weave are a big part of fabric hand.

G. Sonnenberg. *Textile Ind. 120:* 130-131 (May, 1956).

A method is described for calculating both construction density and weave density and the formulas given are useful in practical fabric designing. The principal applications of these formulas are in comparing densities of fabrics to be copied, determining densities of new fabrics, and comparing densities of selvages and body of a fabric.

Examining surface-improved textiles.

W. Rotta and G. Scheurich. *Textil-Praxis (English ed.) No. 1:* 10-14 (March, 1956).

See *TTD 12:* 496 (1955).

Static generator for testing fabric properties? Build this one.

Atlas Powder Co. *Textile Ind. 120:* 127-128 (June, 1956).

Construction details for static generator for testing antistatic agents.

These tests will give you better nylon stockings.

E. N. Ditton. *Modern Textiles Mag. 37:* 42-43, 61 (May, 1956).

Methods of testing for fabric stiffness, yarn levelness, yarn torque and yarn coefficient of friction.

OTHER E 4

Recent problems in testing the lightfastness of dyeings.

K. Hoffman. *Melliand Textilber. 37, No. 2:* 205-210 (1956); *in German.* Through *BCIRA 36:* 259 (1956).

In supplementation of a previous paper on the principles and construction of artificial irradiation installations, the author discusses the general relationships between irradiation and fading, the special effect of the wavelength range absorbed by the dye, fading tests with monochromatic irradiation, quantitative evaluation of fading tests, optimum construction of artificial irradiation installations, and some particulars and experiences with the Hoechst irradiation installation.

INDUSTRIAL ENGINEERING F

Total or specified productivity comparison?

W. Sassmannshausen. *Z. ges. Textil-Ind. 58, No. 3:* 74-77; *No. 4:* 121-122 (1956); *in German.* Through *BCIRA 36:* 264 (1956).

An attempt is made to show by examples the relationship between man, machine and material, and to analyze all technical factors that affect productivity, with reference to the productivity of men (output in kg/working hour) and of machines (spindle hours per kg or per 100,000 m yarn).

What supervisors should know about labor cost control.

J. Henderson (Henderson, Lindsay & Michaels, Inc.). *Textile World 106:* 83-85 (June, 1956).

The basic requirements of a good labor-cost-control system are outlined in the form of questions and answers.

MACHINERY AND MAINTENANCE F 1

Lubrication of the modern textile mill.

Texas Co. *Lubrication 42:* 61-76 (May, 1956).

This article highlights the lubrication needs of the modern textile mill. It outlines how such needs are met by the selection and proper application of suitable lubricants. Significant trends, developments, and lubrication problems are also discussed. A table summarizing the lubricant characteristics required by textile mill machinery is included.

Electrical standards may reduce textile mill fires.

S. Cowan (Factory Insurance Assoc.). *Am. Textile Reptr. 70:* 15-16, 42 (May 10, 1956).

Analysis of the causes of textile mill fires show a high percentage to be caused by faulty electrical systems.

SCIENCES G

CHEMISTRY G 1

Influence of the fiber structure on the nitration of native cellulose.

B. Miller and T. E. Timell (McGill Univ.). *Textile Research J. 26:* 255-263 (April, 1956).

The results indicated that the specimens studied were chemically nonuniform and more so the lower the average degree of substitution. Products formed in an equilibrium-controlled reaction or regenerated from solution were more homogeneous than similar ones obtained under rate-controlled conditions or with the original fiber structure left intact. The nitration involved an initial, rapid but only partial conversion of the surface and outer regions of the microfibrils of the cellulose, followed by a slower but more complete esterification of the interior, more crystalline portions, the easily accessible, short-chain parts being less substituted than the remainder of the material. In this respect nitrates were accordingly found to be different from most other cellulose derivatives. 22 references.

Influence of moisture sorption and other pre-treatments on the acetylation of cotton with acetic anhydride and pyridine.

F. A. Blouin, R. E. Reeves and C. L. Hoffpauir (Southern Regional Research Laboratory). *Textile Research J. 26:* 272-275 (April, 1956).

The degree of acetylation under specified conditions is not only dependent on the moisture content but also on the previous moisture sorption history of the sample. The data indicate markedly greater reactivity, under the conditions employed, of cotton fibers which are desorbing moisture over those of the same moisture content which are absorbing moisture. Long pretreatment with pyridine increases the reactivity of cottons which are absorbing moisture and so tends to eliminate differences due to previous sorption history. Increased reactivity similar to that produced by moisture can be obtained by using a number of other pretreatments. However, the degree of reactivity produced by high moisture contents could be exceeded only with pretreating agents generally considered to penetrate the crystalline regions of the cotton. It was also found that the increased reactivity produced by treatment with strong aqueous alkali was not completely lost on drying. 21 references.

Iodoform reaction on jute hydrolysate.

A. K. Sanyal (India Technological Research Laboratories). *(Letter to the editor). Textile Research J. 26:* 310-311 (April, 1956).

During the course of an investigation of the estimation of acetone in acetone-treated jute by the iodoform reaction, it was found that distillates from dilute acid and alkaline hydrolysates of jute responded to this reaction. At least one of the compounds responsible for the reaction was acetol. The mechanism of acetol formation from cellulose is explained. 4 references.

PATENT CHECKLIST

U. S. Patents may be obtained from the U. S. Patent Office, Washington 25, D. C., for 25 cents per copy. Photostatic copies of foreign patents are available. Charges for these photostats are based on the number of pages in the patent.

Col. 323

FIBERS A

NATURAL FIBERS A 1

Fiber decorticating machine.

J. E. Cary, R. E. Shafer and V. Cary. USP 2 745 142, May 15, 1956.

Machine for the decortication of fibrous vegetable stalks having a fiber-containing bark enclosing a core.

H. D. Thompson and H. D. Wightwick (to Rhodesian Jute Industries Ltd). USP 2 746 092, May 22, 1956.

A lubricated fiber strand comprising a plurality of oriented fibers of vegetable origin.

J. B. O'Neil (to Plymouth Cordage Co.). USP 2 746 887, May 22, 1956.

Process for decorticating fibrous materials.

B. Armstrong (to Jackson & Church Co.). USP 2 747 232, May 29, 1956.

Method of moisture restoration to cotton.

C. C. Speakes and A. C. Griffin, Jr. USP 2 747 234, May 29, 1956.

MAN-MADE FIBERS A 2

Apparatus and method for making wool-like artificial fibers.

M. L. D. Deboutteville (France). USP 2 745 136, May 15, 1956.

Acrylonitrile fibers of improved dye susceptibility.

G. P. Mack (to Carlisle Chemical Works, Inc.). USP 2 745 822, May 15, 1956.

YARN PRODUCTION B

A continuous method of producing textile yarn by applying textile fibers in excess quantity to a strand of fluent tacky carrier material and twisting the fiber-coated strand into yarn.

J. N. Hiensch (to Textile Machinery Corp.). USP 2 743 572, 573, May 1, 1956.

Col. 324

Yarn detecting mechanism for textile machine stop motions.

C. S. Martin and A. E. Cooke (to Trip-Lite Ltd). USP 2 744 174, May 1, 1956.

A method of producing a composite yarn having the appearance of a staple yarn by doubling a tow of incompletely oriented continuous and highly extensible filaments with a tow of continuous filaments of lower extensibility.

J. H. Brant (to Bates Mfg. Co.). USP 2 745 240, May 15, 1956.

Constant force yarn tensioning means.

B. Lermont. USP 2 745 609, May 15, 1956.

Method of making blended yarn from at least two tows of continuous filaments having different characteristics.

G. Tissot and P. G. R. Ott (to Societe de Constructions Mecaniques de Stains). USP 2 746 091, May 22, 1956.

Apparatus for the packaging of continuously produced strands.

W. W. Drummond, W. R. Steitz and W. F. Holtschulte (to Owens-Corning Fiberglas Corp.). USP 2 746 118, May 22, 1956.

Adjustable stop crimper.

I. V. Hitt (to E. I. du Pont de Nemours and Co.). USP 2 747 233, May 29, 1956.

Yarn cutter apparatus for producing staple fibers from continuous filaments.

H. M. Cook (to E. I. du Pont de Nemours and Co.). USP 2 747 663, May 29, 1956.

OPENING, PICKING, FIBER PREPARATION B 1

Lint and fiber cleaner.

V. A. Johnson. USP 2 744 293, May 8, 1956.

Feeder mechanism for textile machines.

F. M. Buresh and H. H. Langdon (to Curlator Corp.). USP 2 744 294, May 8, 1956.

Grid section for a picker apparatus for opening and cleaning textile fibers.

R. S. Curley (to Saco-Lowell Shops). USP 2 746 094, May 22, 1956.

CARDING AND COMBING B 2

Suction cleaners for the carding engines.

A. W. Wright. BP 736 154, September 7, 1955. Through *BCIRA 36:* 245 (1956).

Card clothing for the flats of carding engines.

De Spa et Fils (Belgium). BP 736 287, September 7, 1955. Through *BCIRA 36:* 245 (1956).

Apparatus for detecting and correcting irregularities of thickness of a textile sliver.

G. F. Raper (to T.M.M. (Research) Ltd). USP 2 746 093, May 22, 1956.

DRAWING AND ROVING B 3

Suction duct system for variable drafting heads.

A. A. Spisak (to Warner & Swasey Co.). USP 2 744 295, May 8, 1956.

Textile drafting method and machine and means whereby the fibers are heated while being combed and drafted.

P. T. Bodell (to Collins & Aikman Corp.). USP 2 745 143, May 15, 1956.

Tightening-pulley mounting for the lower tape of tape drawing rollers.

F. Dolling and C. L. Kumpers (to F. A. Kumpers KG). USP 2 745 145, May 15, 1956.

Process for coiling sliver in cans.

R. C. Wilkie (to Pacific Mills). USP 2 745 146, May 15, 1956.

Textile drawing mechanism.

E. Dausch (to SKF Kugellagerfabriken GmbH). USP 2 746 095, May 22, 1956.

SPINNING, WINDING, TWISTING B 4

Delivery of bobbins from winding machines.

K. J. Scharer (to Maschinenfabrik Scharer). BP 735 492, August 24, 1955. Through *BCIRA 36:* 248 (1956).

Bobbin winding spindles.

Fr. Mettler's Sohne Maschinenfabrik AG (Switzerland). BP 735 744, August 24, 1955. Through *BCIRA 36:* 247 (1956).

Device for rocking bobbins of thread during winding in quick-traverse winding machines.

Maschinenfabrik Schweiter AG (Switzerland). BP 735 612, August 24, 1955. Through *BCIRA 36:* 248 (1956).

Winding of the soft cakes of yarns appropriate to package dyeing in uptwisters and like machines.

A. Davenport (to Ernest Scragg & Sons Ltd). BP 736 162, September 7, 1955. Through *BCIRA 36:* 246 (1956).

Textile ring doubling machines.

E. Findlow (to Ernest Scragg & Sons Ltd); E. H. Bennett (to S. Bourne & Co. Ltd). BP 736 256, September 7, 1955. Through *BCIRA 36:* 245 (1956).

A synthetic resin bobbin.

A. Beecham (to Courtaulds Ltd). BP 736 263, September 7, 1955. Through *BCIRA 36:* 248 (1956).

Cop winding machines.

T. Hill (to James F. Low & Co. Ltd). BP 736 425, September 7, 1955. Through *BCIRA 36:* 247 (1956).

Slubbing mechanism.

G. Partington. USP 2 743 485, May 1, 1956.

Winding machine for brass bobbins.

R. S. Needham (England). USP 2 743 876, May 1, 1956.

Thread clamping device for automatic coil winding machine.

S. Furst (to Walter Reiners). USP 2 743 877, May 1, 1956.

Take-up spool.

A. S. Murray (to North American Rayon Corp.). USP 2 744 694, May 8, 1956.

Twist control balloon inclosure.

C. B. Kingsbury (to North American Rayon Corp.). USP 2 745 239, May 15, 1956.

Device for measuring the unwinding tension from a textile yarn package.

J. J. Vincent and P. H. Wolfenden (to Brit. Cotton Ind. Research Assoc.). USP 2 745 281, May 15, 1956.

Thread tension regulating means for reeling machines and the like.

J. V. Reyes (Spain). USP 2 745 610, May 15, 1956.

In the process for spinning a thread, introducing prior to the twisting step limited lengths of at least one filament of a non-spinnable fiber.

G. Kufner (Germany). USP 2 746 236, May 22, 1956.

Thread guide for winding machines.

A. Brugger (France). USP 2 746 688, May 22, 1956.

Spindle means for supporting a hollow winding cone.

L. Berkepeis (to American Enka Corp.). USP 2 746 689, May 22, 1956.

Process and apparatus for twist winding heavy denier yarn packages.

R. L. Keefe, Jr. (to E. I. du Pont de Nemours and Co.). USP 2 747 359, May 29, 1956.

Dampened thread guide in a ring spinning frame.

L. Vella (Italy). USP 2 747 360, May 29, 1956.

A device for placement of the thread on a bobbin during quick traverse winding.

W. Schweiter and K. Marx (to Schweiter Ltd). USP 2 747 805, May 29, 1956.

Machine for operating upon bobbins to remove surplus yarn therefrom.

R. E. Borchardt (to Barber-Colman Co.). USP 2 747 806, May 29, 1956.

Bobbin chuck.

D. W. Selby (to E. I. du Pont de Nemours and Co.). USP 2 747 809, May 29, 1956.

Automatic torque control system for maintaining substantially uniform tension on a web or strand being wound onto or unwound from a reel.

R. J. Weesner and H. L. Kelley (to Louis Allis Co.). USP 2 748 299, May 29, 1956.

YARNS B 5

Method of producing an adhesive cotton yarn.

G. L. Deniston (to Commonwealth Engineering Co. of Ohio). USP 2 746 880, May 22, 1956.

FABRIC PRODUCTION C

Yarn guide.

L. Trapido (to Kahn & Feldman, Inc.). USP 2 747 815, May 29, 1956.

WARPING, SLASHING, YARN PREPARATION C 1

Apparatus for separating the ends in a warp sheet as fed to a loom or warp knitting machine.

A. R. Eyre (to F. N. F. Ltd). BP 735 656, August 24, 1955. Through *BCIRA 36:* 248 (1956).

Warp beams and the like.

J. Stanworth (to T. Ashworth & Co. Ltd). BP 736 150, September 7, 1955. Through *BCIRA 36:* 248 (1956).

Slasher creel beam bearing.

E. H. Granberry and J. M. Wall (to West Point Mfg. Co.). USP 2 744 801, May 8, 1956.

Apparatus for cleaning threads.

A. Moos (to Zellweger AG). USP 2 746 120, May 22, 1956.

Apparatus for uniformly tensioning yarn ends in a warp.

W. T. R. Kinraide (to E. I. du Pont de Nemours and Co.). USP 2 747 251, May 29, 1956.

WEAVING C 2

Shuttle guards for looms.

S. F. Warren (to Gold Mohur Mills Ltd). BP 735 629, August 24, 1955. Through *BCIRA 36:* 249 (1956).

Picker assemblies for an underpick loom.

H. Hargreaves. BP 735 754, August 31, 1955. Through *BCIRA 36:* 249 (1956).

Device for taking up the fabric in a circular loom.

Saint Freres (France). BP 736 282, September 7, 1955. Through *BCIRA 36:* 249 (1956).

Weft thread separator for drop box looms.

G. Wiget (to Societe Anonyme Adolphe Saurer). USP 2 743 744, May 1, 1956.

Loom stop motion upon failure of a selvage thread.

M. R. Flamand (to Draper Corp.). USP 2 744 544, May 8, 1956.

Filling detection for weaving machine of the gripper shuttle type.

R. B. Taylor, Sr. and R. Whewell, Jr. (to Warner & Swasey Co.). USP 2 744 545, May 8, 1956.

Loom gauge.

C. R. Kronoff and A. H. Taylor, Jr. (to Crompton & Knowles Loom Works). USP 2 745 185, May 15, 1956.

Net making machines.

T. E. Boynton and W. G. Turnbull (to Porter, Spiers (Leicester) Ltd). USP 2 745 309, May 15, 1956.

Let-off for looms.

M. R. Flamand (to Draper Corp.). USP 2 745 439, May 15, 1956.

Shuttleless looms with continuous weft feeding.

R. Dewas (France). USP 2 745 440, May 15, 1956.

Stop motion for looms.

C. Roebuck. USP 2 745 441, May 15, 1956.

Device for arranging wire heddles on rods in warp drawing machines.

H. Meirehofer (to Zellweger AG). USP 2 746 119, May 22, 1956.

Device for use in tensioning thread.

K. W. Webb (Ireland). USP 2 746 488, May 22, 1956.

Electric weft stop motion for narrow ware loom.

K. J. Hall (to Crompton & Knowles Loom Works). USP 2 746 490, May 22, 1956.

Checking means for loom picking mechanism.

B. W. Brouwer and R. F. Dion (to Crompton & Knowles Loom Works). USP 2 746 487, May 22, 1956.

Cloth roll support means for looms.

L. M. Rogers (to Draper Corp.). USP 2 746 489, May 22, 1956.

Circular looms.

J. Catry and R. N. Low (to Fairwest (U. K.) Ltd). USP 2 747 618, May 29, 1956.

A device for removing thread remainders from bobbins.

W. Stutz (to Stutz & Cie.). USP 2 747 728, May 29, 1956.

KNITTING C 3

Stop motions particularly for a knitting machine.

C. S. Martin and A. E. Cooke (to Trip-Lite Ltd). BP 736 392, September 7, 1955. Through *BCIRA 36:* 249 (1956).

Cam means for an independent needle knitting machine.

F. C. Wiesinger (to Jacquard Knitting Machine Co., Inc.). USP 2 743 595, May 1, 1956.

Apparatus for delivering weft threads for incorporation in fabric being knitted.

H. C. Noe (to Kidde Manufacturing Co., Inc.). USP 2 743 596, May 1, 1956.

Widening mechanism for straight knitting machines.

L. Franceschini (to Officine Galileo Societa per Azioni). USP 2 744 397, May 8, 1956.

Warp knitting machine.

W. Scheibe (Germany). USP 2 744 398, May 8, 1956.

Yarn feeding mechanism for knitting machines.

B. H. West (to G. Stibbe & Co. Ltd). USP 2 744 399, May 8, 1956.

Mechanism for automatically adjusting full fashioned knitting machines to knit stockings of different sizes.

M. H. Boyer (to Danita Hosiery Mfg. Co., Inc.). USP 2 744 400, May 8, 1956.

Circular knitting machine of the opposed needle cylinder type.

F. E. Deans (to Bentley Engineering Co. Ltd). USP 2 745 269, May 15, 1956.

Catchbar safety means for full-fashioned knitting machines.

C. R. Fegley (to Textile Machine Works). USP 2 745 270, May 15, 1956.

Carrier rod drive mechanism for straight knitting machines.

E. M. Zesch (to Karl Lieberknecht, Inc.). USP 2 746 274, May 22, 1956.

Yarn severing device for straight-bar full-fashioned knitting machines.

A. J. Cobert (to Beautiful Bryans, Inc.). USP 2 746 275, May 22, 1956.

Method of making widened weft knit selvaged fabric.

O. F. Smetana (to Phil Cord Corp.). USP 2 746 276, May 22, 1956.

Seamless article of knitted footwear and method of producing the same.

A. P. Saunders (to Wildt and Co. Ltd). USP 2 747 389, May 29, 1956.

Circular knit stocking and method of making the same.

B. T. R. Reymes-Cole (to Kendall Co.). USP 2 747 390, May 29, 1956.

Open mesh or net fabric having a plurality of knitted warp chain threads and a plurality of undulated serpentine unknitted threads.

M. Sadinoff and A. Holtz. USP 2 747 392, May 29, 1956.

FABRICS C 4

An inflatable fabric segment of curved configuration comprising a double ply construction of untreated raw nylon threads and treated and pre-stressed nylon coated with vulcanized rubber.

P. Mauney and C. J. Ford (to Goodyear Tire & Rubber Co.). USP 2 743 510, May 1, 1956.

Hemmed cloth with an adhesive type binder.

R. D. Wood, Jr. and G. Thomson (to Millville Mfg. Co.). USP 2 744 844, May 8, 1956.

A flexible protective structure comprising a multiplicity of layers of 2 x 2 basket weave nylon fabric and a synthetic resin bonding.

D. C. Stickles (to Victory Plastics Co.). USP 2 744 846, May 8, 1956.

Apparatus for producing continuously a low density high bulk filler suitable for sleeping bags by covering core material with fibrous material.

E. R. Frederick. USP 2 745 375, May 15, 1956.

Three-shot Axminster weave.

G. E. Herrnstadt (to Firth Carpet Co., Inc.). USP 2 745 442, May 15, 1956.

Pile fabrics.

W. R. Keen (to Collins & Aikman Corp.). USP 2 745 443, May 15, 1956.

Woven matting consisting solely of interwoven warp and weft members.

G. L. Rodolphe Longtin (to Kraft Paper Products Ltd). USP 2 745 444, May 15, 1956.

Porous membrane for a fluid separator consisting of porous tubes of resin impregnated woven material and a body of glass fibers.

F. O. Hess (to Selas Corp.). USP 2 746 607, May 22, 1956.

Resilient fiber pad and method of making same.

K. L. Orser and R. D. Clapp (to Columbian Rope Co.). USP 2 746 894, May 22, 1956.

Manufacture of fiber felts.

T. C. Duvall (to Wood Conversion Co.). USP 2 746 895, May 22, 1956.

Method for the manufacture of composite rubber articles which are reinforced with plies of cord fabric made from cellulose products.

H. L. Roder and G. Hennemann (to American Enka Corp.). USP 2 746 897, May 22, 1956.

Method of embroidering and clipping terry cloth.

F. R. Piper and J. M. Gardner (to West Point Mfg. Co.). USP 2 747 534, May 29, 1956.

A machine for the production of fabric having a tufted surface.

E. T. C. Brinton and H. F. Lowe (to Brintons Ltd). USP 2 747 647, May 29, 1956.

Porous cementitious heat insulating material containing reinforcing fiber consisting essentially of a major proportion of asbestos fiber and a minor proportion of yarn-type glass fiber filaments.

H. P. Hoopes (to Pabco Products Inc.). USP 2 747 994, May 29, 1956.

Nonwoven glass fiber mat.

H. M. Richardson (to Atlas Powder Co.). USP 2 748 028, May 29, 1956.

Apparatus for detecting holes in tubular fabric.

R. C. Baker. USP 2 748 381, May 29, 1956.

FINISHING AND CHEMICAL PROCESSING D

CHEMICAL PROCESSES D 1

Crease-proofing agents for fibrous materials.

Badische Anilin und Soda Fabrik AG (Germany). BP 735 861, August 31, 1955. Through *BCIRA 36:* 255 (1956).

Waterproofing of textile materials and polysiloxane compositions therefor.

Societe des Usines Chimiques Rhone-Poulenc (France). BP 736 184, September 7, 1955. Through *BCIRA 36:* 256 (1956).

Production of organo-mercury fungicides for rotproofing textiles.

M. Hannon, H. G. Dickenson and P. P. Hopf (to Ward Blenkinsop & Co. Ltd). BP 736 399, September 7, 1955. Through *BCIRA 36:* 256 (1956).

Method of coating fibers with a vinyl copolymer and a Werner complex.

R. F. Caroselli (to Owens-Corning Fiberglas Corp.). USP 2 744 835, May 8, 1956.

Apparatus for controlling the tension of artificial filaments during fluid treatment.

N. Drisch and R. Brepson (to Societe Chimiotex). USP 2 746 281, May 22, 1956.

Dry adhesion method for adhering textile material to rubber.

H. M. Buckwalter and J. M. Almand (to United States Rubber Co.). USP 2 746 898, May 22, 1956.

Method of applying nylon finish to garments.

R. S. Horn, Jr. and R. F. Patt (to Hans C. Bick, Inc.). USP 2 746 941, May 22, 1956.

Production of wear-resistant cloth impregnated with polyethylene glycol and buffing wheel made of it.

A. S. Brown and A. M. Brown (to Divine Brothers Co.). USP 2 747 981, May 29, 1956.

Making a metallized sheet fabric by applying an aqueous dispersion of thermoplastic resin binder material and a layer of heat reflecting metal flakes.

A. F. Schramm, Jr. USP 2 748 019, May 29, 1956.

Process of adhering textile fibers to rubbers and product thereof.

E. F. Kalafus (to General Tire and Rubber Co.). USP 2 748 049, May 29, 1956.

DYEING AND PRINTING D 2

Process for improving the fastness of direct dyeings on cellulosic textiles.

Badische Anilin und Soda Fabrik AG (Germany). BP 735 557, August 24, 1955. Through *BCIRA 36:* 253 (1956).

Process for the optical brightening of organic materials, compositions for use therein, and materials treated.

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